

#### HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G50HSL BK083 is a 50% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

#### **Product information**

Resin Identification Part Marking Code Part Marking Code ISO designation	PA6T/XT-GF50 >PA6T/XT-GF50< >PPA-GF50< ISO 16396-PA6T/XT,GF50,M1CGHR,S10-190		ISO 1043 ISO 11469 SAE J1344
Rheological properties	dry/cond.		
Moulding shrinkage, parallel Moulding shrinkage, normal	0.2/- 0.5/-	% %	ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural modulus Charpy impact strength, 23°C Charpy notched impact strength, 23°C Charpy notched impact strength, -40°C Poisson's ratio	17800/17800 262/245 2.1/2.1 16400/- 80/- 15/- 15/- 0.33/0.33	MPa MPa % MPa kJ/m² kJ/m² kJ/m²	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 179/1eU ISO 179/1eA ISO 179/1eA
Thermal properties	dry/cond.		
Melting temperature, 10°C/min Melting temperature, first heat Temperature of deflection under load, 1.8 MPa Coeff. of linear therm. expansion, parallel, -40-23°C Coefficient of linear thermal expansion (CLTE), parallel Coeff. of linear therm. expansion, normal, -40-23°C Coefficient of linear thermal expansion (CLTE), normal	300/* 300/* 265/* 14/* 14/* 45/* 48/*	°C °C °C E-6/K E-6/K E-6/K	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested Burning Behav. at thickness h Thickness tested Oxygen index Glow Wire Flammability Index, 0.75mm Glow Wire Flammability Index, 1.5mm Glow Wire Flammability Index, 3.0mm FMVSS Class Burning rate, Thickness 1 mm	HB/* 1.5/* HB/* 0.85/* 24/* 800/- 775/- 960/- B 29		IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 IEC 60695-11-10 ISO 4589-1/-2 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-12 SO 3795 (FMVSS 302) SO 3795 (FMVSS 302)

Printed: 2025-03-27 Page: 1 of 9



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#### Physical/Other properties

dry/cond.

Density 1640/- kg/m<sup>3</sup> ISO 1183

#### Injection

Drying Recommended	yes
Drying Temperature	100 °C
Drying Time, Dehumidified Dryer	6-8 h
Processing Moisture Content	≤0.1 %
Melt Temperature Optimum	325 °C
Min. melt temperature	320 °C
Max. melt temperature	330 °C
Mold Temperature Optimum	150 °C
Min. mould temperature	140 <sup>[1]</sup> °C
Max. mould temperature	180 °C

[1]: Higher temperature needed for thinner sections.

#### Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Special characteristics Heat stabilised or stable to heat, Hydrolysis resistant, Laser Markable

#### Additional information

Injection molding During molding, use proper protective equipment and adequate ventilation. Avoid

exposure to fumes and limit the hold up time and temperature of the resin in the

machine. Purge degraded resin carefully with HDPE.

When lower mold temperatures are used, the initial warpage and shrinkage may be lower, but the surface appearance and chemical resistance may be reduced, and the dimensional change may be greater when parts are subsequently

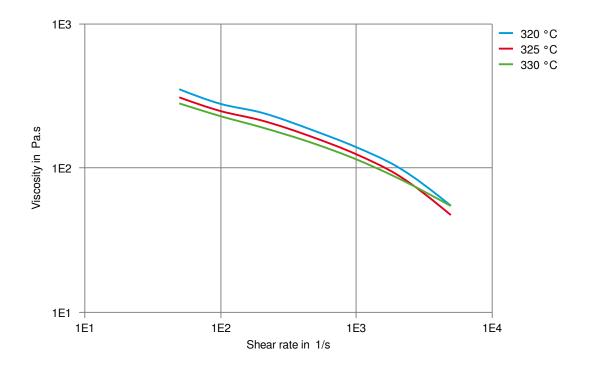
heated.

Printed: 2025-03-27 Page: 2 of 9



HIGH PERFORMANCE POLYAMIDE RESIN

Viscosity-shear rate

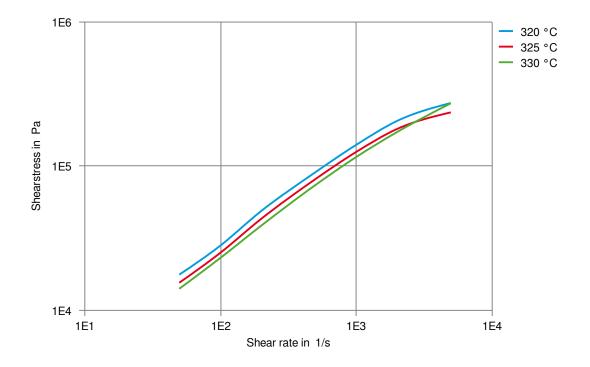


Printed: 2025-03-27 Page: 3 of 9



HIGH PERFORMANCE POLYAMIDE RESIN

Shearstress-shear rate

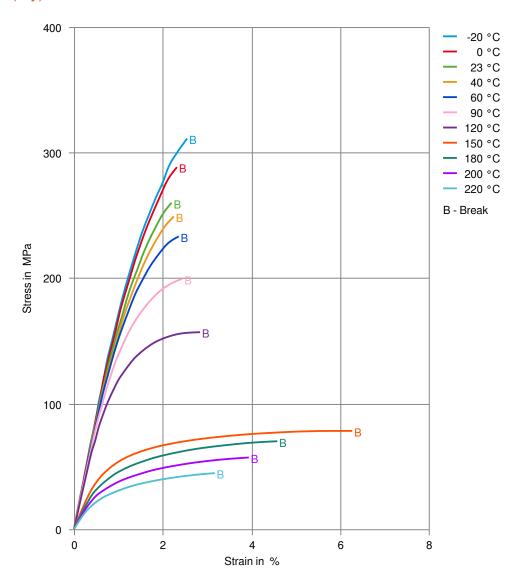


Printed: 2025-03-27 Page: 4 of 9



### HIGH PERFORMANCE POLYAMIDE RESIN

#### Stress-strain (dry)

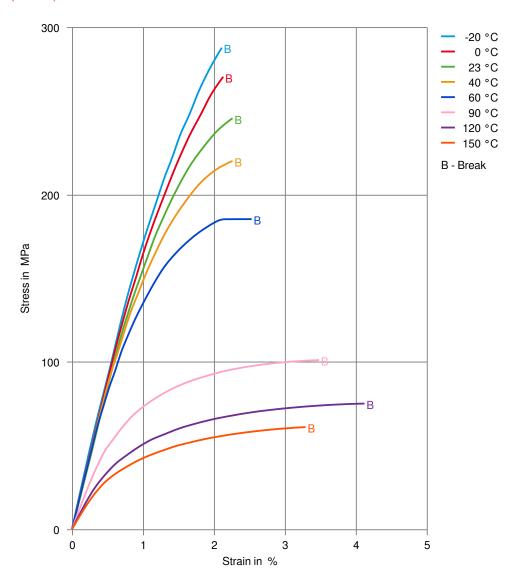


Printed: 2025-03-27 Page: 5 of 9



# Zytel® HTN51G50HSL BK083 HIGH PERFORMANCE POLYAMIDE RESIN

#### Stress-strain (cond.)

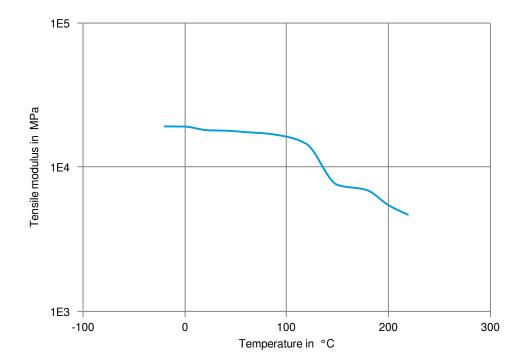


Printed: 2025-03-27 Page: 6 of 9



# Zytel® HTN51G50HSL BK083 HIGH PERFORMANCE POLYAMIDE RESIN

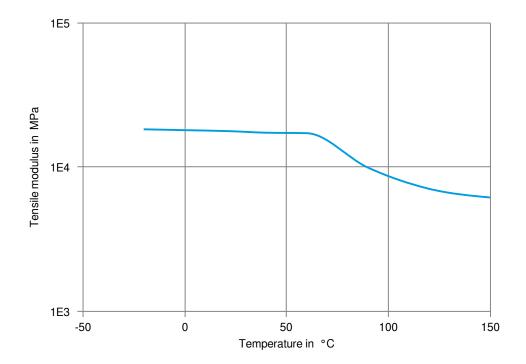
Tensile modulus-temperature (dry)



Printed: 2025-03-27 Page: 7 of 9



Tensile modulus-temperature (cond.)



Printed: 2025-03-27 Page: 8 of 9



#### HIGH PERFORMANCE POLYAMIDE RESIN

#### Chemical Media Resistance

#### Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C

#### Other

- ✓ Ethylene Glycol (50% by mass) in water, 108°C
- ✓ Water, 23°C
- ✓ Water. 90°C
- ✓ Coolant Glysantin G48, 1:1 in water, 125°C

#### Symbols used:

possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Printed: 2025-03-27 Page: 9 of 9

Revised: 2024-10-31 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufac

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